

INTERNATIONAL SEARCH REPORT

 Rec'd PCT/PTO 20 APR 2005
 International Application No. PC 02/36521

A. CLASSIFICATION OF SUBJECT MATTER

 IPC 7 C10G45/58 C10G45/60 C10G45/64 B01J29/40 B01J29/44
 B01J29/70 B01J29/74 B01J29/80

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C10G B01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 41333 A (BAUMGARTNER JOSEPH ERNEST ; EXXON RESEARCH ENGINEERING CO (US); LIN) 19 August 1999 (1999-08-19) claims; examples 1-4; tables 1-6 page 5, line 5 - page 6, line 18 ---	1-10
X	US 5 723 716 A (ZINKIE DAVID N ET AL) 3 March 1998 (1998-03-03) claims 1,5-8,10,13,17; examples 1,3 column 2, line 37-59 column 3, line 40 - column 4, line 4 column 5, line 29-31 column 6, line 4-9 --- -/--	1-10

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

3 June 2003

Date of mailing of the international search report

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 770 542 A (ALWARD SANDRA J ET AL) 23 June 1998 (1998-06-23) claim 1; examples 1,3 column 1, line 13-18 column 2, line 37-59 column 3, line 40 -column 4, line 4 column 5, line 31-33 ---	1-10
X	WO 98 50497 A (EXXON RESEARCH ENGINEERING CO) 12 November 1998 (1998-11-12) claims 1,3,4,7-10; example page 1, line 1-7 page 2, line 7-28 page 3, line 1-11 page 5, line 14-27 page 7, line 18 -page 8, line 6 page 8, line 23-27 page 10, line 22-26 ---	1-10
A	US 4 428 865 A (OLECK STEPHEN M ET AL) 31 January 1984 (1984-01-31) cited in the application claims 1,2; examples 10-13 column 1, line 15-23 column 3, line 56-68 column 6, line 49-56 -----	1-10

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-10

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-10

1.1. Claims: 1-9

method for hydroisomerizing a waxy feed to produce a lube basestock by contacting the waxy feed under hydrosiomerization conditions with a unitized mixed powdered pellet catalyst comprising (i) one from 8, 10 or 12 ring molecular sieves with a metal hydrogenation component dispersed thereon as 1st dewaxing component and (ii) an amorphous inorganic oxide with a metal hydrogenation component dispersed thereon as 2nd isomerization component, wherein the ratio of component (i) to (ii) is selected to provide a trans-1,2-/trans-1,3-dimethylcyclopentane ratio of less than 1 in the conversion of methyl cyclohexane at 320 C and an ethylcyclopentane selectivity of at least 50% at 10% conversion

1.2. Claim : 10

method for hydroisomerizing a waxy feed to produce a lube basestock by contacting the waxy feed under hydrosiomerization conditions with a unitized mixed powdered pellet catalyst comprising (i) one from 8, 10 or 12 ring molecular sieves with a metal hydrogenation component dispersed thereon as 1st dewaxing component and (ii) an amorphous inorganic oxide with a metal hydrogenation component dispersed thereon as 2nd isomerization component, wherein the ratio of component (i) to (ii) is selected to provide a trans-1,2-/trans-1,3-dimethylcyclopentane ratio of at least 1 in the conversion of methyl cyclohexane at 320 C and an ethylcyclopentane selectivity of at least 50% at 10% conversion

2. Claims: 11-17

method for hydroisomerizing a waxy feed to produce a lube basestock by contacting the waxy feed under hydrosiomerization conditions with a unitized mixed powdered pellet catalyst comprising (i) at least one from 8, 10 or 12 ring molecular sieves with a metal hydrogenation component dispersed thereon as 1st dewaxing component and (ii) at least one from 8, 10 or 12 ring molecular sieves with a metal hydrogenation component dispersed thereon as 2nd dewaxing component, wherein the ratio of component (i) to (ii) is selected to provide a trans-1,2-/trans-1,3-dimethylcyclopentane ratio of less than 1 in the conversion of methyl cyclohexane at 320 C and an

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

ethylcyclopentane selectivity of at least 50% at 10%
conversion

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9941333	A	19-08-1999	AU 742605 B2 AU 2763199 A CA 2319385 A1 EP 1054941 A1 JP 2002503753 T WO 9941333 A1	10-01-2002 30-08-1999 19-08-1999 29-11-2000 05-02-2002 19-08-1999
US 5723716	A	03-03-1998	US 5977425 A CA 2204278 A1 DE 69525469 D1 DE 69525469 T2 EP 0793700 A1 JP 10509199 T WO 9616142 A1 US 5770542 A	02-11-1999 30-05-1996 21-03-2002 27-06-2002 10-09-1997 08-09-1998 30-05-1996 23-06-1998
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US 4428865	A	31-01-1984	US 4372839 A	08-02-1983